

Determinants of Resident Satisfaction in Public Housing: A Case Study of Program Perumahan Rakyat (PPR) Paya Nahu, Malaysia

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Abstract: This study examines resident satisfaction within the Program Perumahan Rakyat (PPR), a primary government initiative in Malaysia designed to provide the B40 low-income group with affordable and sustainable housing. As housing is recognized as a fundamental human right essential for social and economic stability, evaluating the success of such public programs through the lens of resident well-being is critical for future urban planning. The purpose of this research is to assess the level of satisfaction among residents regarding their living conditions and the facilities provided under the program. Guided by Maslow's hierarchy of needs, the study focuses on three key dimensions: physical characteristics of the housing unit, safety needs, and social needs. Data was collected from 212 residents at PPR Paya Nahu, Kedah, using a quantitative approach. The findings indicate that while all variables correlate positively with resident satisfaction, the physical characteristics of the house—such as unit size, layout, and ventilation—emerge as the most influential factors. Conversely, safety needs recorded the lowest satisfaction levels, highlighting significant concerns regarding security and criminal activity in the area. This research contributes a holistic, need-based model to the literature on public housing, offering a structure for policymakers and managers to design more effective interventions that balance physical functionality with security and community cohesion.

Keywords: *Public Housing, Physical Housing Characteristics, Program Perumahan Rakyat, Safety Needs, Maslow Hierarchy of Needs, Malaysia*

1. Introduction and Background

Housing is a fundamental human right and a critical factor in social and economic stability. In Malaysia, the Program Perumahan Rakyat (PPR) was specifically established to provide the B40 income group with access to affordable and comfortable housing, distinguishing it from broader market-driven projects. This initiative aligns with Sustainable Development Goal (SDG) 11, which focuses on making cities inclusive, safe, and sustainable.

However, site-specific issues often hinder these goals. At PPR Paya Nahu in Sungai Petani, Kedah, significant dissatisfaction stems from safety concerns. Reports indicate the area has become a hub for drug trafficking, online gambling, and 'ketum water' processing. The Kuala Muda National Anti-Drug Agency confirmed that 50% of crime incidents in the vicinity are linked to drug addiction, tarnishing the area's reputation as the "Colombia Flat". Recent studies suggest that such issues prevent the full realization of the government's housing objectives.

The National Affordability Housing Policy (2019) defines the concept of housing affordability and categorizes it to ensure clarity in addressing the housing needs of different income groups. According to the National Housing Department Malaysia, 2019, affordable housing refers to homes that are considered affordable for households earning at or below the median income, as determined by the national government using a recognized housing affordability index. Housing affordability is essential to ensure that homes are offered at fair and affordable prices for people across all income levels (Raslim et al, 2020). The policy establishes specific classifications to determine what qualifies as affordable housing, ensuring targeted solutions for various income levels and promoting equitable access to quality homes. One of the initiatives by the government is introducing the Program Perumahan Rakyat (PPR) to provide affordable housing for the low-income and middle-income groups. This program aims to solve housing problems while creating sustainable, inclusive, and comfortable living spaces.

In the Sustainable Development Goals (SDGs), there are SDG 3 (Good Health and Well-being) and SDG 11 (Sustainable Cities and Communities). In Malaysia, the government introduced PPR as an effort to provide affordable housing for low-income families, namely the B40 group. The implementation of PPR is aligned with SDG 3 and SDG 11. SDG 3 aims to ensure healthy lives and promote well-being for all, while SDG 11 focuses on making cities inclusive, safe, resilient, and sustainable. However, despite the government's efforts, the program faces several issues that affect the population's satisfaction, thereby preventing the achievement of the SDGs (Md. Asrul Nasid & Nurul Fatimah, 2024).

In a 2023 study conducted by Khazanah Research Institute, the satisfaction levels of residents in five Public Housing Projects (PPRs) are examined based on two indices: the Unit Index and the Complex Index, each with detailed components. Among the PPRs, PPR Jalan Sungai scores the highest in the Unit Index (71.2), indicating better unit conditions, while PPR Kerinchi leads in the Complex Index (77.2), showing superior shared facilities. However, PPR Salak Selatan has the lowest scores in both Unit Index (63.5) and Complex Index (54.8), indicating the least satisfaction overall. These findings highlight strengths and weaknesses in housing quality across the PPRs.

There is no denying that there are many issues that arise regarding resident satisfaction with PPR. One of them is at PPR Paya Nahu at Sungai Petani, Kedah. The issues that are highlighted in PPR Paya Nahu that create dissatisfaction among the residents are more related to the safety needs. According to the news reported by Utusan Malaysia, it is believed that PPR Paya Nahu became the center of various unhealthy activities, including drug trafficking, online gambling, a location for processing 'ketum water', the sale of smuggled cigarettes, and a location where people are wanted for hiding and where members of gangster groups live (Othman, 2022). This criminal activity has been confirmed by the Kuala Muda National Anti-Drug Agency, Samsuri Yusuf, where 50% of the crime incidents that occur there are due to drug addiction problems, and this certainly affects the image and safety of the area and the surrounding areas. (Zawawi et al., 2019). Additionally, the Paya Nahu PPR is also called the 'Colombia Flat', which has further tarnished the image and given the public a bad impression of the residents of the Paya Nahu PPR (Izzad Thaqif, 2022).

Based on the issue above, we can conclude that there is an influence of safety needs that motivates us to conduct this study. Therefore, based on the issue stated regarding Paya Nahu as well as the study conducted by Khazanah Research Institute and supported by the theory of Maslow, we aim to conduct the resident satisfaction towards PPR based on three aspects, namely physical characteristics of the house, safety needs, and social needs.

2. Literature Review

This study is grounded in **Maslow's Hierarchy of Needs**, which posits that individuals are motivated to satisfy lower-level needs before progressing to higher-level fulfilment.

Physiological Needs & Physical Characteristics: In a housing context, the physical characteristics of a unit (size, ventilation, and layout) serve as the most basic requirement for comfort. Studies show that overcrowding and small kitchen or laundry areas in PPR flats lead to significant dissatisfaction.

Safety Needs: Beyond shelter, residents require a secure environment. This includes functional CCTV, safe staircases, and effective fencing to protect children.

Social Needs: Higher-order satisfaction is derived from community interaction, neighbourly trust, and participation in activities like *gotong-royong*.

While recent literature confirms a significant relationship between housing design and satisfaction, there is a gap in understanding how these three levels of Maslow's theory interact specifically within high-density, low-cost environments like Paya Nahu.

Resident satisfaction is a key measure in evaluating the success of public housing programs such as Program Perumahan Rakyat (PPR). Satisfaction refers to the extent to which housing conditions meet the expectations, needs, and comfort of residents (Mohammad Abdul et al., 2010). In low-cost housing, this satisfaction is often shaped by both physical and non-physical aspects of housing, including design, safety, and social environment

(Mustaqim, 2012). Since PPR was introduced to provide affordable homes for the low-income B40 group, ensuring residents are satisfied with their homes is essential to achieve the objectives of providing sustainable and livable housing.

Among the different factors, the physical characteristics of the house are one of the most influential in determining resident satisfaction. Physical features such as the number of bedrooms, size of the living room, kitchen, and ventilation directly affect daily activities and family comfort (Norjanna & Lau, 2024). In many PPR flats, overcrowding is a common issue because the unit sizes are often small for larger families. Studies in Malaysia have shown that while residents may be satisfied with access to facilities and location, they are less satisfied with the limited space inside their homes (Husna & Nurizan, 1987; Nurizan, 1993). This suggests that satisfaction depends heavily on whether the physical layout of the home matches the household's size and lifestyle.

Research has consistently highlighted the link between physical characteristics and housing satisfaction in different countries. For example, Huang and Du (2015) found that in China, larger housing units with more bedrooms provided higher levels of satisfaction because they allowed families to enjoy more privacy and flexibility. In Malaysia, studies on PPR residents also revealed that dissatisfaction often arises when kitchens, laundry areas, or dining rooms are too small, making it difficult for families to carry out daily activities (Goh & Yahaya, 2011; Norazmawati & Siti Nur Fatimah, 2021). These findings confirm that the quality and usability of internal spaces strongly influence residents' perception of comfort and satisfaction.

In addition to space, factors such as ventilation, lighting, and construction quality are also linked to resident satisfaction. Poor ventilation and limited natural light reduce comfort and can lead to health problems, lowering satisfaction levels (Awang et al., 2019). Conversely, strong building materials and proper finishing increase durability and safety, which give residents confidence in their homes and a sense of pride (Abdul Ghani, 2008; Tan, 2012). A study by Norjanna and Lau (2021) further showed that residents' overall satisfaction improved when housing units were designed to support both comfort and functionality, proving the strong role of physical features in shaping satisfaction.

For PPR projects, these findings mean that physical characteristics are not just about construction standards but about ensuring livable conditions that improve the well-being of low-income households. Aimi and Nor Hafizah (2020) confirmed that there is a significant positive relationship between housing design and resident satisfaction. When homes are designed with enough bedrooms, proper ventilation, and user-friendly layouts, residents report higher satisfaction levels and are more likely to view their housing positively.

In conclusion, the physical characteristics of the house are the main factor influencing resident satisfaction in PPR. Unit size, number of rooms, layout, and ventilation directly affect comfort and daily activities. Well-designed houses reduce overcrowding and improve quality of life, while poorly designed units create dissatisfaction. Therefore, enhancing the physical features of PPR homes is essential to provide livable housing for low-income communities.

Proposed Model

This paper develops a model that describes the satisfaction of residents with the People Housing Program (PPR) according to Maslow's theory. Maslow's theory states that people are motivated to satisfy their physiological needs, then safety and social needs, and then higher needs. In the case of PPR housing, the satisfaction of the residents can be described in terms of three key elements, namely physical characteristics, safety needs, and social needs.

The Integration of Physical Characteristics of the House, Safety Needs, and Social Needs Factors: The integration of these three components for the improvement of residents' satisfaction could be made in the following ways:

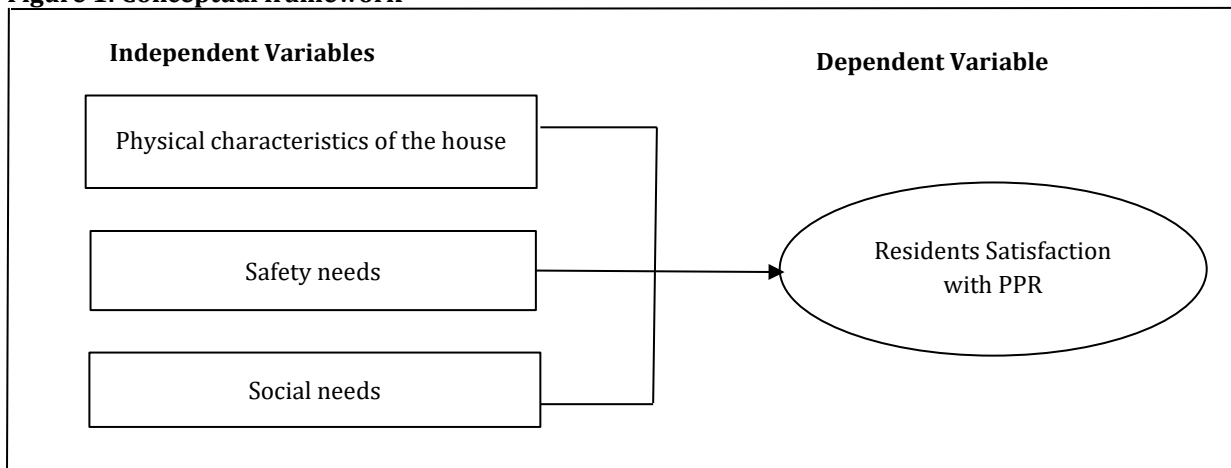
- Physical Characteristics of the House are concerned with the sufficiency of the internal features of the housing unit, which have a direct impact on comfort and daily household activities. These are the size of the living room and living hall, the number and size of bedrooms, the number of bathrooms, the

sufficiency of the dining room, kitchen, and washing area, the number of electrical sockets, and the quality of interior construction. When these features respond to the needs of the residents, the level of satisfaction is higher as the home is more suitable to support family activities and to provide a comfortable living environment.

- Safety Needs refer to the feeling of security of the residents in their housing units and the surrounding environment. This involves the availability of residential security measures, the staircases being in good condition, and the availability of a CCTV control system to observe activities. Safety needs include the confidence of parents in allowing their children to play in the neighborhood without supervision, the effectiveness of the fences in corridors to ensure that children do not climb, and the sense of safety when residents walk around the residential area. Besides, the general feeling that the area is crime-free is a major determinant of satisfaction. With all these elements in place, residents will feel more secure, less worried, and more confident in their living environment, which is a significant contribution to their overall satisfaction with PPR housing.
- Social Needs focus on the significance of acceptance, interaction, and participation in the PPR society. This involves a sense of acceptance by neighbors, frequent communication and the establishment of positive relationships that lead to trust and harmony. Social needs also include how residents feel responsible towards the welfare of the neighborhood, and how comfortable they feel living among people of different backgrounds. Besides, satisfaction depends on the accessibility and frequency of social activities, including gotong-royong, and whether the work-life balance of residents allows participation. The fact that associations exist in the PPR and actively participate in solving problems also reinforces social needs. When these factors are met, residents feel more connected, have a feeling of belonging, and are happier with their living conditions.

This model is based on Maslow's Theory, which states that the satisfaction of residents with PPR depends on their physical, safety, and social needs fulfilment. It is important to focus on these areas concurrently to establish sustainable housing environments that improve the comfort of residents, their security, and their sense of community.

Figure 1: Conceptual framework



Note. The framework between the independent variables and the dependent variable

According to Figure 1, there are three independent variables in the framework, which are physical characteristics of the house, safety needs, and social needs, all influencing the dependent variable, which is residents' satisfaction with PPR. Physical characteristics refer to the basic housing characteristics such as design, space, and functionality, correlating with Maslow's physiological needs. Safety needs stress the need for a secure and safe living environment, whereas social needs emphasize the importance of community engagement and relationships in housing satisfaction. According to this conceptual framework, if satisfaction increases in any one of these areas, it should directly contribute to the overall residents' satisfaction with the PPR housing initiatives.

3. Research Methodology

This study utilized a cross-sectional quantitative technique to assess satisfaction levels. According to Murthy and Bhojanna (2009), research methodology is the methodical process of solving a research topic by collecting data using a variety of approaches, providing an interpretation of the data collected, and drawing conclusions about the research data.

Unit of Analysis: The unit of analysis is the individual resident.

Population and Sampling: The target population consists of residents from PPR Paya Nahu, which comprises 2,064 units (Phase 1: 592; Phase 2: 1,472). Using convenience sampling, data were collected from residents accessible during the study timeframe.

Sample Size: While the ideal sample size for this population is 322 based on Krejcie and Morgan (1970), a total of 212 respondents completed the survey through face-to-face distribution and online Google Forms. Sample size refers to the portion of a population selected to provide enough information for drawing meaningful conclusions (Sekaran & Bougie, 2010). Kumar et al. (2013) define it simply as the total number of participants or observations included in a study. The intended residents for this study are residents of Program Perumahan Rakyat Paya Nahu, Sungai Petani, and Kedah. There are 2,064 units of houses in total, of which 592 units are in phase 1 and 1,472 units are in phase 2. The sample size table by Krejcie and Morgan (1970) suggests that 322 is the ideal sample size for this population to guarantee a statistically sound and representative sample

Measurement: Satisfaction was measured using a five-point Likert scale ranging from "Strongly Disagree" (1) to "Strongly Agree" (5).

Quantitative Research Design: According to Durrheim (2004), it is a methodical structure for gathering action data that connects research themes. Based on primary data from respondents, this study employed a cross-sectional quantitative technique. This indicates that to ascertain the residents' level of satisfaction with the Program Perumahan Rakyat PPR, a questionnaire was distributed to households using quantitative techniques. As a result, many respondents' data could be gathered using this study methodology. Additionally, hypothesis testing, which comprised null and alternative hypotheses related to dependent and independent variables, was employed to achieve the study's goals.

4. Findings and Discussion

Table 1: Demographic Profile of Respondents

Profile	Frequency	Percentage
Gender		
Male	106	50.0
Female	106	50.0
Total	212	100.0
Profile	Frequency	Percentage
Race		
Malay	160	75.5
Indian	27	12.7
Chine	25	11.8
Total	212	100.0
Profile	Frequency	Percentage
Number of households		
2	36	17.0
3	32	15.1
4	55	25.9
5	62	29.2

6 and above	27	12.7
Total	212	100.0
Profile	Frequency	Percentage
Respondent's home ownership status		
Own	4	1.9
Rent	208	98.1
Total	212	100.0
Profile	Frequency	Percentage
Phase		
Phase 1	128	60.4
Phase 2	84	39.6
Total	212	100.0
Profile	Frequency	Percentage
Employment status		
Private	55	25.9
Government	5	2.4
Business/Self-Employment	100	47.2
Unemployed	52	24.5
Total	212	100.0
Profile	Frequency	Percentage
Length of residency		
1 - 2 years	1	0.5
3 - 5 years	26	12.3
6 - 9 years	49	23.1
9 years and above	136	64.2
Total	212	100.0

Table 1 shows the demographic profile of 212 respondents who took part in this study. The demographic profile shows an equal distribution of gender (50% male, 50% female), with the majority of respondents (64.2%) having lived in the PPR for over 9 years.

The gender distribution is equal, with 50 percent male respondents and 50 percent female respondents. In terms of race, most respondents are Malay, accounting for 75.5 percent, followed by Indian at 12.7 percent and Chinese at 11.8 percent. For the number of household members, most respondents, 29.2 percent, come from families with five members, followed by 25.9 percent with four members, 17 percent with two members, 15.1 percent with three members, and the remaining 12.7 percent have six or more members in their household. Furthermore, when looking at home ownership status, a significant majority of 98.1 percent of respondents rent their homes, while only 1.9 percent own them.

In terms of the phase of participation, 60.4 percent of respondents are from Phase 1, and the remaining 39.6 percent are from Phase 2. Regarding employment status, 47.2 percent of the respondents are involved in business or are self-employed, 25.9 percent work in the private sector, 24.5 percent are unemployed, and only 2.4 percent work in the government sector. Lastly, the length of residency shows that the majority, 64.2 percent of respondents, have lived in their current area for 9 years and above, 23.1 percent for 6 to 9 years, 12.3 percent for 3 to 5 years, and only 0.5 percent for 1 to 2 years.

Table 2: Descriptive Statistics of Variables

	N	Minimum	Maximum	Mean	Std. Deviation
Resident Satisfaction with PPR	212	1.60	5.00	3.4745	0.66226
Physical Characteristics of the House	212	1.60	5.00	3.5580	0.734471
Safety needs	212	1.00	5.00	2.8187	0.76253
Social needs	212	2.00	5.00	3.9741	0.59662

Descriptive analysis was utilized to understand the residents' satisfaction with PPR. The dependent variable of the study is resident satisfaction with PPR and there are three independent variables that represent resident satisfaction with PPR. The independent variable of this study is the physical characteristics of the house, safety needs and social needs. The responses for each topic were based on a five-point Likert scale, which included (1) strongly disagree, (2) disagree, (3) moderate agree, (4) agree, and (5) strongly agree.

Based on the data presented in Table 2, the dependent variable, which is resident satisfaction toward PPR, has a mean value of 3.47, which falls in the average category of means. Among the three independent variables, social needs got the highest mean value, which is 3.9471. Next, the physical characteristics of the house got the mean value of 3.5580. Lastly, the lowest mean value was presented to safety needs with the value 2.8187. In summary, the mean values reported in the findings indicate that both the dependent and most of the independent variables fall within the average to high categories. However, an exception was observed for the independent variable related to safety needs, which was categorized as low.

Table 3: Pearson Correlation between Housing Characteristics, Safety Needs, Social Needs and Resident Satisfaction with PPR

Relationship between variables	R-value	P-value
Physical characteristics of the house and resident satisfaction with PPR	0.650	<.001, $p < 0.05$
Safety needs and resident satisfaction with PPR	0.621	<.001, $p < 0.05$
Social needs and resident satisfaction with PPR	0.535	<.001, $p < 0.05$

Correlation is significant at the 0.01 level (1-tailed)

Table 3 presents the Pearson correlation analysis results between the independent variables and resident satisfaction with the PPR. The results indicate the presence of positive and significant correlations between the three independent variables and satisfaction, at the 0.01 level. Among them, the physical characteristics of the housing units present the most significant correlation with the resident satisfaction ($r = 0.650$, $p < .001$), followed by safety needs ($r = 0.621$, $p < .001$), and social needs ($r = 0.535$, $p < .001$). These results imply that enhancements in the design and facilities of housing, alongside safety measures and social support, will increase the satisfaction levels of PPR residents. These findings also support Maslow's hierarchy of needs in reaffirming that satisfying low-order physiological and safety requirements lays the basis for social well-being and life satisfaction.

Table 4: Results of Multiple Regression Analysis

Variable	Unstandardized coefficients	Standardized coefficients	t-value	p-value	Decision
Physical characteristics of the house	0.350	0.388	7.004	<.001	Based on the beta value, the physical characteristic of the house is the most influential factor.
Safety needs	0.330	0.380	7.467	<.001	

Social needs	0.198	0.178	3.290	0.001
R² = 0.583				
F-value = 97.045				
P-value =				
< .001				

Table 4 shows the results of a multiple regression analysis to determine the influence of physical characteristics of the house, safety needs, and social needs on residents' satisfaction with PPR housing. All independent variables show a significant relationship with the dependent variable, which is resident satisfaction with PPR, as all p-values are below the 0.05 significance level. Specifically, physical characteristics and safety needs have p-values less than 0.001, while social needs have a p-value of 0.001. This shows that all three variables significantly influence residents' satisfaction.

Among the three variables, the physical characteristics of the house are identified as the most influential factor affecting resident satisfaction. This is because it has the highest standardized beta coefficient ($\beta = 0.388$), compared to safety needs ($\beta = 0.380$) and social needs ($\beta = 0.178$). The unstandardized beta coefficient for physical characteristics is $B = 0.350$, followed by safety needs ($B = 0.330$) and social needs ($B = 0.198$). The regression model is statistically significant as $F(3,208) = 97.045$, $p < .001$. Thus, the independent variable, which is the physical characteristics of the house, significantly influences the dependent variable, which is resident satisfaction with PPR. The R-squared value is 0.583. It shows that only 58.3% of the variance in resident satisfaction towards PPR can be explained by the independent variable, while 41.7% cannot be explained. Hence, it proves that the model is statistically significant. In summary, the physical characteristics of the house are the most influential factors of resident satisfaction towards PPR.

5. Conclusion and Recommendations

This paper aims to compare levels of satisfaction among residents enrolled in the PPR and to suggest a model that explains the concept of satisfaction in three major dimensions, namely the physical features of the house, safety needs and social needs. Based on the Hierarchy of Needs, the results show that the combination of these dimensions determines the general satisfaction of the residents with the environment they live in.

Although the PPR program provides the low-income population with affordable housing, several issues remain in terms of housing space sufficiency, safety, and community integration opportunities. As an example, the lack of room size, maintenance issues, and concerns about the security of the neighborhood tend to reduce the level of satisfaction. Similarly, a lack of active socialization and community associations can undermine the sense of belonging among the residents. These findings highlight the necessity of housing policymakers to focus on not only affordability, but also the physical, safety, and social needs of PPR housing.

Theoretical Implications: This paper is a contribution to the literature on housing and urban studies as it expands the Hierarchy of Needs by Maslow to the setting of low-cost public housing. The results show that physiological needs (sufficient physical characteristics), safety needs (safe housing conditions), and social needs (relationships within the community) depend on each other to influence satisfaction. Using the theory of Maslow, the research shows that housing satisfaction does not only focus on the provision of shelter, but also the fulfillment of other psychological and social needs. The theoretical framework may be utilized in the future to investigate the issue of public housing in various settings, thus increasing the generalizability of need-based theories to the study of housing.

Managerial Implications: The results give several practical lessons to policymakers, housing authorities, and PPR managers. First, physical characteristics of the house, such as room size, number of bathrooms, kitchen area, and power supply, should be improved to meet the daily needs of the residents. Second, safety needs, such as proper staircases, efficient CCTV control, proper fencing and all-encompassing crime-prevention measures, are crucial to building confidence of residents in the environment. Third,

social needs should be addressed by community programs, frequent gotong-royong activities, active resident associations, and programs that encourage interaction among different backgrounds, which will enhance the cohesion of the neighborhood. These measures should be collaborative among government agencies, housing developers and community leaders to make sustainable gains in PPR satisfaction.

It can be summarized that the combination of physical features, safety needs, and social needs provides a holistic approach to the satisfaction of residents in PPR housing. Theoretically, this model applies Maslow's hierarchy of needs to the housing context, whereas, on a managerial level, it offers a structure of how more effective housing policies and interventions can be designed. Overall, the study contributes to the knowledge of how the PPR can be improved, to meet the housing development objectives of Malaysia and the Sustainable Development Goals, namely SDG 3: Good Health and Well-Being and SDG 11: Sustainable Cities and Communities. The development of a safe, comfortable, and unified living environment requires effective cooperation between the policymakers, housing authorities, and residents.

Future Research: Further studies are needed to include PPR projects in different states of Malaysia to capture regional differences in satisfaction. There should also be longitudinal studies to determine how the level of satisfaction changes with time, especially after policy interventions or facility upgrades. Moreover, mixed method designs that involve surveys and in-depth interviews would provide more detailed information on the lived experiences of residents. The generalizability of the findings would also be enhanced by comparison research with other types of public or affordable housing, both locally and internationally, which would also help to refine the proposed model.

In a nutshell, the study concludes that resident satisfaction in PPR housing is a holistic concept requiring the simultaneous fulfilment of physical, safety, and social needs.

Policy Recommendations

Enhance Unit Design: Prioritize improvements in room size, kitchen areas, and ventilation to alleviate overcrowding.

Strengthen Security: Implement robust crime-prevention measures, including efficient CCTV monitoring and improved fencing, to address the low safety satisfaction.

Community Engagement: Foster neighborhood cohesion through active resident associations and regular social programs to meet higher-order psychological needs.

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